The Behavior Analyst 2011, 34, 181–184 No. 2 (Fall)

Introduction: Private Events in a Natural Science of Behavior

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Ever since Skinner (1945) suggested how so-called "subjective" terms could be brought under the control of private stimuli, behavior analysts have debated the nature and role of private events in a natural science of behavior. In this issue, the debate continues with the target article by Baum and commentaries by five prominent behavioral theoreticians. Specifically, Baum (2011a) argues that it is futile to speculate about private events because, behavior, by its very nature, is extended in time and, thus, we are only tempted to "posit private events … when an activity is viewed in too small a time frame, obscuring what the activity does" (p. 185). In other words, a molar approach to understanding behavior precludes any consideration of private events because such events occur on too small a scale and, thus, are not necessary to understand behavior.

Baum is not arguing that private events (e.g., neural events, private stimuli, and covert behavior) do not exist. However, he believes that appealing to them addresses only behavioral mechanisms, in other words, *how* behavior occurs, but not the function of behavior, or *why* it occurs, which he thinks must be clarified before looking for underlying mechanisms. For Baum, attempting to understand mechanisms, whether they are physiological or behavioral, is not necessary in a natural science of behavior. To summarize his position succinctly, private actions or stimuli are neither causal nor essential.

If by *causal* Baum means ultimately causal, he may be on safer ground, although some have suggested that our own self-talk, whether overt or covert, can possibly condition other verbal and nonverbal behavior (Schlinger, 2008). His inclusion of *essential* is more revealing. For Baum, the origins of behavior always lie in the environment. So, for example, when presented with a problem, that is, a situation where some form of reinforcement is available but the necessary response is not immediately evoked, Baum is unconcerned with the chain of problem-solving behaviors that lead to the necessary final response, whether they are observed or unobserved. Of course, often such behavioral chains are not observed, involving as they do, in humans at least, covert verbal responses. Baum believes that speculating about such private events is an exercise in futility if one wants to understand the function of behavior, that is, the ultimate causes, or reinforcement contingencies. He argues that if one looks at behavior in the proper extended time frame, private events become irrelevant.

Three of the commentators (Palmer, Marr, and Catania) express serious concerns with several aspects of Baum's thesis; Rachlin agrees with Baum, but prefers the phrase *teleological* to *molar* behaviorism; and Hineline agrees in principle with Baum's molar behaviorism (although he prefers what he calls a *multiscaled* behaviorism) but not with his views on the interpretive status of private events.

Although Baum and the commentators make many points, there are two issues on which I'd like to add my two cents. One is Baum's argument that by addressing private events, behavior analysts miss the ultimate function of behavior and focus instead on mechanism. Baum

believes that speculating about any events in the behavioral stream, but especially unobserved ones, misses the ultimate destination, or cause, of the stream. Rachlin (2011) says the ''whole pattern of behavior into which the individual act fits'' (p. 211) can be conceptualized as the final cause, hence his teleological behaviorism. Thus, for Baum, and I assume for Rachlin as well, we can understand observable behavior (there is no point speculating about or inferring unobserved behavior) best (only?) by looking at its relation to observed environmental events (antecedent events and consequences). In his commentary, Marr (2011) charges that this ''position is essentially a mutation of methodological behaviorism'' (p. 213). Marr may be correct because in his reply, Baum (2011b) writes,

> The main point of my article is that, whether or not anyone has private events, and whether or not anyone has a soul, neither private events nor souls belong in a science of behavior. The reason is simply that they cannot be measured, and science deals with data, with measurable events. (p. 237)

This is a straightforward statement, with which all of the commentators, except Rachlin, disagree.

The issue about mechanism is a complex one. On the one hand, behavior analysts, following Skinner, have eschewed inferences of physiological mechanisms with the argument that behavior can be understood (i.e., predicted and controlled) without knowledge of such events. On the other hand, a complete understanding of behavior must include proximal causes (mechanisms) as well as distal (or ultimate) causes. Proximal causes include not only physiological processes but also all the stimuli and responses (whether observed or unobserved) that comprise any behavioral relation. Baum, however, believes that all we need to know or to concern ourselves with are the observed stimuli and responses. So, for example, if your fax machine stops working and you begin talking to yourself about what you can do to fix it and finally decide to hit the reset button, Baum believes we should only be concerned with the failure of the device (as a stimulus), hitting the reset button (as the behavior), and the consequence of the device working again, in other words, the observable contingency of reinforcement. For Baum, the mediating verbal behavior, whether overt or covert (i.e., unobserved), is irrelevant and not worthy of our attention even if it participates functionally in the entire behavioral unit and obeys the same laws.

All of the commentators, except Rachlin, disagree. For example, Palmer (2011) believes that ''the ambient public stimuli are not sufficient to explain'' any variance in behavior, and that inferring private events can account for ''the variance without introducing anything mysterious'' (p. 205). In the above example, instead of hitting the reset button, the person could have decided instead to unplug the fax machine and plug it back in, or any number of other behaviors. For Palmer, the possible variations in the final behavior can only be accounted for by inferring problem-solving behaviors. Of course, as Hineline points out, any interpretations involving private events must be ''viewed as provisional, that is, less certain than explanations based on accomplished analyses'' (p. 222).

Three of the commentators (Marr, Hineline, and Catania) hold that a more inclusive position than Baum's and Rachlin's is one that recognizes that behavioral events occur at more than one level of possible analysis. As Catania (2011) puts it, ''The issue here is not about molar accounts but rather about the nesting of phenomena at different levels of analysis'' (p. 234). Hineline (2011) suggests that ''the term *multiscaled* would permit greater salience of the fact that small-

scale analyses can be consistent with his [Baum's] position and could enable more detailed and constructive comparisons of behavior analysis with other explanatory traditions'' (p. 221). Baum (2011b) actually agrees with this statement and adds, ''In the molar or multiscale view, activities are always extended, whether at short scales or long scales, and one chooses the scales for analysis based on one's purposes and the orderliness of the data'' (p. 243). However, this statement seems at odds with his adamant opposition to considering private (unobserved) events, which brings us to the second issue I want to address: the definition of *private*.

One of Skinner's (1945) most important theoretical contributions was his suggestion that rather than debating endlessly about the definitions of terms, a more scientific approach is to identify the variables that control the term as a verbal response. Following from this, it seems that the variables that control Baum's use of *private* are different than those that control it for several of the commentators. This is most clearly stated in Baum's (2011b) reply to the commentators when he writes that, ''*private* means, by definition, unobservable by another'' (p. 237). Of course, what Baum means is that, *for him*, *private* means unobservable. But for some of the commentators (Palmer, Marr, and Catania) and other behavior analysts, *private* means unobserved. This mirrors Rachlin's (2003) distinction between Privacy A and Privacy B, or what Baum refers to as privacy by accident (unobserved) and privacy in principle (unobservable). However, for Marr and Palmer, there can be no such thing as privacy in principle if we assume a monistic, physical universe.

This is an important difference. If events we call *private* are unobservable, or private in principle, then Baum is correct in his contention that speculating about them is futile in a science of behavior (although even Hineline agrees that appeals to such events are worthy of our attention, although problematic). But how would we ever determine whether an event is unobservable? After all, many events in the history of science that were unobserved at one time were later observed with improvements in technology. If by *private,* however, we mean *unobserved,* then speculating about such events is potentially useful. As Palmer, Marr, Hineline, and Catania note, scientific interpretation has a long history in the other natural sciences. It is also referred to as *deductive inference* (Schlinger, 1998), which, in the natural sciences, usually only occurs after a foundation of experimentally established laws has been discovered from which the inferences are deduced. Often, the inferences are later substantiated with improvements in the ability to make observations that were not possible at the time the inferences were made. So, too, it is with behavioral science. Once we have a foundation of established principles induced from hundreds or thousands of experiments, we can infer controlling relations with respect to behavior that either we are unable to observe at the time or we can observe but whose conditioning history is unknown. For example, if we observe a child throwing a tantrum, we can infer that in the past such behavior has produced consequences we call reinforcers. These past contingencies are private in fact rather than private in principle (Baum would say that they are not private, but rather are unobserved) in that they are not accessible to us. Based on our interpretation, however, we can look for the occurrence of similar consequences and modify them to change the behavior. Likewise, in the above example about the fax machine that stops working, we can infer behaviors that may be unobserved (Baum would say that these behaviors are private in princi-

ple, that is, unobservable) and without which a particular solution would not have occurred. The question is whether these behaviors are private in fact or private in principle. Palmer, Marr, Hineline, and Catania would view them as private in fact, acknowledging that we cannot exclude the possibility of observing them with the appropriate tools.

Thus, for many behavior analysts, interpretation is not unconstrained speculation, as Baum charges, and is, therefore, different from his examples of speculating about souls or phlogiston. As Palmer, Marr, Hineline, and Catania point out, interpretation about unobserved events is constrained by what we know about behavior and its controlling variables. Unlike speculating about souls, these interpretations or inferences are potentially testable because the inferences are of physical, if not observed, events.

In conclusion, Baum's target article and reply and the commentaries reveal what appears to be a fundamental disagreement among some behavior analysts about the nature and role of private events in the analysis and interpretation of behavior (although it may reflect more of a difference in the variables that control the term *private*), but, more important, about the overall strategy behavior analysts take to understanding behavior, although there does seem to be a point of agreement about adopting a paradigm (molar?) that involves a multiscaled approach to behavior.

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